

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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ART UNIT: 4153

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EXAMINER: Mellon, D. C.

TITLE: FLUID FLOW INTERRUPTION MEANS FOR FILTER OF WATER PURIFIER

Amendment D: REMARKS

Upon entry of the present amendments, previous Claims 5 and 6 have been canceled and new claims 7 and 8 substituted therefor. Reconsideration of the rejections, in light of the forgoing amendments and present remarks, is respectfully requested. The present amendments have been entered for the purpose of overcoming the previous informalities and also for the purpose of more clearly distinguishing the present invention from the prior art references.

In the Office Action, it was indicated that Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Horne patent in view of the Van Scyoc patent and further in view of the Hansen patent. Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Horne patent in view of the Van Scyoc patent and in view of the Hansen and Nan patents. The claims were also rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Additionally, there is an informality associated with the claim interpretation.

As an overview to the present reply, Applicant has extensively revised previous independent Claim 5 in the form of new independent Claim 7. New independent Claim 7 incorporates the limitations of previous independent Claim 5, but has been revised so as to correct for the informalities identified by the Examiner. So as to distinguish the present invention from the prior art combination, Applicant has included in new independent Claim 7 that the guide passage has "a

wall with an inner diameter that narrows in diameter toward and adjacent one end thereof". The filter body is now defined as having "an inlet hole" formed in "an upper surface thereof". The inlet hole is recited as "having a longitudinal axis that is offset from the longitudinal axis of the guide passage". It is further recited that one end of the guide passage faces the upper surface of the filter body in a position away from the inlet hole. The filter body and the head define a channel between the upper surface of the filter body and the lower surface of the head extending from one end of the guide passage to the inlet hole. The "opening and closing projection" is now recited as having an end extending outwardly of one end of the guide passage. The elastic spring is now recited as bearing against the opening and closing body so as to urge the opening and closing projection outwardly of one end of the guide passage. It is now recited that the opening and closing body is spaced from one end of the guide passage when the upper surface of the filter body bears against the end of the opening and closing projection so as to allow fluid to flow thereby and outwardly of one end of the guide passage and into the channel. It is further indicated that the elastic spring urges the opening and closing body toward the end of the guide passage so as to be in sealing relation with the wall of the guide passage when the filter body is uncoupled from the head so as to block fluid from flowing outwardly of one end of the guide passage. Applicant respectfully contends that these limitations serve to distinguish the present invention from the prior art combination of the Horne, Van Scyoc and Hansen patents.

The Horne patent shows a poppet valve. This popped valve of the Horne patent has a hollow guide rod in which fluid flows therethrough. The spring urges a rod into one position so that a hole in the wall of the rod allows a fluid to flow into the interior of the rod. This spring can urge the member 56 to a downward position so as to block such flow. This is quite different than the present

invention in which the fluid flows into the guide passage and is blocked at the opening of the guide passage adjacent to the top surface of the water filter.

Specifically, the Horne patent does not show the opening and closing body as blocking fluid flow. Quite clearly, the guide passage of the Horne patent is aligned with the inlet port. There is no opening or closing protuberance bearing upon the upper surface of the filter body.

The operation of the Horne patent was described in column 3, lines 41 - 55 as follows:

The operation should be clear from the foregoing description. In the absence of the container 6, the poppet valve 29 is held closed as seen in FIG. 3 under action of spring 50 and fluid pressure. When the container 6 is connected to the valve 5, the extension 27 first makes a fluid tight connection with the tubular shank portion 31 of the poppet valve 29 by entry in its bore 30, and then the valve 29 is unseated by a engagement of the lower end of the tubular shank 31 with a top of the end wall 43' of neck 28, allowing flow of fluid from the inlet pipe connection 37 to the outlet pipe connection 38 through the container 5, the flow rate being controllable by threading the neck 28 in only as far as it is necessary to obtain the flow rate desired, full flow being obtained, of course, when the neck 28 is screwed in all the way home.

In contrast, the present invention allows the fluid to flow around the outside of the fluid guide rod and the opening and closing body so as to be released through the tapered end of the guide passage and into the channel formed between head and the upper surface of the filter body. As such, the fluid can flow into the filter body. The present invention has a top surface on the filter body that provides an abutment area whereby the pressure upon the end of the opening and closing projection causes the opening and closing body to its position that allows fluid to flow around an exterior thereof. When the filter body is removed, the lack of pressure of the upper surface of the filter body against the end of the opening and closing projection will cause the elastic spring to urge the opening and closing body downwardly so as to be in a sealing relationship against the tapered inner wall of the guide passage. As such, the present invention assures that water flow is prevented from

occurring when the filter body is uncoupled from the head. Applicant respectfully contends that the Horne patent does not show the structure of the present invention, as defined by independent Claim 7, nor does it carry out the function or achieve the advantages of the present invention.

The Van Scyoc patent teaches a quick-disconnect fluid coupling and check valve. The Van Scyoc patent is not a filter apparatus. There is no opening and closing projection. This projections does not bear against any top surface of the filter body. In the Van Scyoc patent, the guide passage is axially aligned with the inlet hole. Quite clearly, the Van Scyoc patent shows pipes that are connected in end-to-end and longitudinally aligned relationship. The operation of the Van Scyoc patent was recited in column 4, lines 43 - 50 as follows:

The spring 70 surrounding the valve stem has a suitable spring constant so that the valve will open at a desired fluid pressure differential and will close if fluid pressure differential is below that amount. Thus, the valve does not remain in the open position until the coupling is disconnected, but closes whenever fluid flow through the coupling is stopped or is below some set amount or when the coupling is disconnected.

This operation is quite different than the present invention. Once again, fluid flow around the periphery of the opening and closing body occurs when the head is connected to the filter body such that the upper surface bears against the end of the opening and closing projection so as to urge the opening and closing body inwardly of the guide passage. When the filter body is removed, the pressure on the end of the opening and closing projection is removed so as to cause the spring to urge the opening and closing body downwardly into sealing relationship with the tapered inner wall of the guide passage. As such, fluid flow is blocked from entering the channel between the guide passage and the inlet hole of the filter body. As such, Applicant respectfully contends that the structure of the present invention, the function of the present invention, and the results achieved by the present invention are quite different than that shown by the quick-disconnect fluid coupling of

the Van Scyoc patent.

The Hansen patent shows a simple valve. There is no teaching or suggestion in the Hansen patent for the use of such a valve in connection with a filter apparatus. In the Hansen patent, there is merely shown a valve with a spring attached thereto so as to urge the valve into sealing relationship with a tapered opening. The "guide passage and the inlet hole" are axially aligned and are not offset from each other. There is no channel formed by the relationship between the lower surface of the head and the upper surface of the filter body. The Hansen also lacks many other limitations found in independent Claim 7.

The combination of the Horne, Van Scyoc and Hansen patents would not show the structure of the present invention. Importantly, in the present invention, one can provide the guide passage in offset relationship to the inlet hole of the filter body. As such, the filter body itself provides a surface whereby the opening and closing action of the valve within the guide passage can occur automatically. The prior art combination simply shows various valve arrangements so as to block fluid flow through axially aligned pipes. None of the prior art references deal with a water filter apparatus or a water filter. As such, they are from fields of art quite removed from the present invention. The prior art combination would certainly lack the opening and closing projection that bears against an upper surface of a filter body. The prior art combination lacks the channel formed between the lower surface of the head and the upper surface of the filter body. As such, the prior art combination would not be adaptable for use in association a filter apparatus whereby fluid flow to the filter body is prevented when the head is disconnected from the filter body. On this basis, Applicant respectfully contends that independent Claim 7 is patentably distinguishable from the prior art.

Applicant has removed the limitation of "said hollow cylindrical protuberance suitable for

allowing fluid to flow therethrough from said inlet port to said guide passage". Applicant's attorney agrees with the analysis of the Examiner that this limitation is unclear considering the structure of the present invention as originally disclosed. Similarly, Applicant has revised the language relating to the positioning to the "opening and closing projection" of the fluid flow interrupter. As such, Applicant believes that the present amendments address the formality objections by the Examiner.

Dependent Claim 8 reflects the limitations of previous dependent Claim 6.

Based upon the foregoing analysis, Applicant contends that Claim 7 is now in a proper condition for allowance. Additionally, the claim which is dependent upon Claim 7 should also be in condition for allowance. Reconsideration of the rejections and allowance of the present claims at an early date is earnestly solicited. Since no new claims have been added above those originally paid for, no additional fee is required.

Respectfully submitted,

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